

IN THE CLAIMS:

1-25. (Canceled).

26. (Currently amended) A transgenic, non-human mammalian ~~farm~~ animal ~~having a~~ whose ~~genome, the genome comprising~~ comprises:
a stably integrated, recombinant nucleic acid encoding a polymeric immunoglobulin receptor (pIgR) protein operatively linked to a mammary specific promoter[[[.]]; wherein a mammary gland of said transgenic, non-human mammalian animal over-expresses said pIgR protein as compared to expression of the pIgR protein in a mammary gland of a wild-type, non-human mammalian animal;
wherein said pIgR protein is capable of transporting transports a polymeric immunoglobulin protein across the basolateral side of ~~an~~ a mammary gland's epithelial cell to the epithelial cell's apical side of the mammary gland's epithelial cell as compared to a different immunoglobulin protein located on the epithelial cell's basolateral side ; ~~resulting in over-expression of the polymeric immunoglobulin protein on the epithelial cell's apical side in comparison to another immunoglobulin protein located on the epithelial cell's basolateral side.~~

27. (Currently amended) The transgenic, non-human mammalian ~~farm~~ animal of claim 26, wherein the polymeric immunoglobulin protein is selected from the group consisting of IgM and IgA.

28. (Currently amended) The transgenic, non-human mammalian ~~farm~~ animal of claim 26, wherein the immunoglobulin protein located on the epithelial cell's basolateral side is IgG.

29. (Currently amended) The transgenic, non-human mammalian ~~farm~~ animal of claim 26, wherein said transgenic, non-human mammalian ~~farm~~ animal over-expresses said pIgR protein at least 10-fold higher than the expression of the pIgR protein in the wild-type, ~~of said~~ non-human mammalian ~~farm~~ animal.

30. (Currently amended) A method of making the transgenic, non-human mammalian ~~farm~~ animal of claim 26, said method comprising:
producing a DNA construct comprising a nucleic acid encoding a the pIgR protein operably linked to a mammary specific promoter ~~capable of driving that drives~~ expression of said pIgR protein in a mammary gland epithelial cell;
introducing said DNA construct into fertilized eggs; and
implanting the fertilized eggs ~~comprising said DNA construct~~ into a pseudopregnant, female non-human mammalian ~~farm~~ animal, thereby producing the transgenic, non-human mammalian ~~farm~~ animal ~~according to~~ of claim 26.

31. (Currently amended) The method according to claim 30, wherein said mammary specific promoter ~~capable of driving expression of said pIgR protein in a mammary gland epithelial cell~~ is a casein promoter.

32. (Currently amended) A method of collecting an immunoglobulin from the transgenic, non-human mammalian ~~farm~~ animal of claim 26, comprising:
providing the transgenic, non-human mammalian ~~farm~~ animal ~~from~~ of claim 26, ~~whose genome comprises a recombinant nucleic acid encoding a polymeric immunoglobulin receptor (pIgR) protein, which said protein is capable of transporting a polymeric immunoglobulin protein across the basolateral side of an epithelial cell to the epithelial cell's apical side, resulting in over-expression of the polymeric immunoglobulin protein on the epithelial cell's apical side compared to another immunoglobulin protein located on the epithelial cell's basolateral side; and~~
collecting milk comprising said polymeric immunoglobulin protein from the mammary gland of said transgenic, non-human mammalian ~~farm~~ animal.

33. (Currently amended) The method according to claim 32, further comprising isolating said polymeric immunoglobulin protein from the milk.

34. (Currently amended) The method according to claim 32, wherein collecting milk comprising said polymeric immunoglobulin protein comprises collecting milk comprising ~~either~~ IgM or IgA.

35. (Currently Amended) The method according to claim 34 32, further comprising:
administering a protein to said transgenic, non-human animal prior to collecting the milk from
the mammary gland;
wherein the administered protein enhances endogenous pIgR expression in the transgenic, non-
human animal ~~capable of enhancing the expression of pIgR in the transgenic mammalian~~
~~farm animal prior to collecting milk from the mammary gland, the protein selected from~~
~~the group consisting of interferon- γ , interleukin-1, interleukin-4, and tumor necrosis~~
~~factor- χ .~~

36. (Currently amended) The method according to claim 34 32, further comprising
administering an antigen to said transgenic, non-human mammalian ~~farm~~ animal prior to
collecting the milk from the mammary gland.

37. (Canceled).

38. (New) The method according to claim 32, further comprising:
administering a protein to said transgenic, non-human animal prior to collecting the milk from
the mammary gland;
wherein the administered protein is selected from the group consisting of interferon- γ ,
interleukin-1, interleukin-4, and tumor necrosis factor-alpha.